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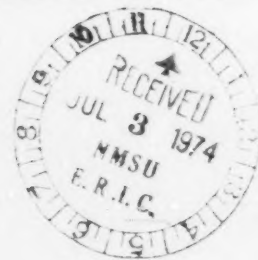
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ABSTRACT

Discussing psychology for Africa, particularly rural Kenya, this paper presented two implications for the country and people interested in its affairs. First, although urbanization and "Westernization" are perhaps the most salient aspects of modern Africa, there is little understanding of how family relationships and child care are affected by these processes. The second implication examined the use of differences between black and white babies as evidence for racial superiority, arguing that precocity as a generalized phenomenon is not an accurate way to either conceptualize or investigate African infant development. Infant motor development has become almost a standard focus of African research, starting with Gerber in 1958, but it was not until recently that data were reported to indicate that any differences exist between African and European development. Serious problems remain, however, arising from the use of standard Western infant development tests. It was reported that the early precocity of African infants begins to decline at approximately 18 months, until by the third year they score reliably below Western infants, but it is rarely noted that many of the test items introduced during the second year are distinctly Western. The study concluded that the motor precocity phenomena which are reliably known at present can be adequately explained by the variations in child care and training practices. The theory that there is a general precocity which is "related primarily to genetic factors" fails to acknowledge, and has difficulty in accounting for, the discrete patterning of precocity and deficit. (KM)

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INFANT CARE AND MOTOR DEVELOPMENT
IN RURAL KENYA:

Some Preliminary data
on precocity and deficit

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Presented at the regional meeting of the
International Association for Cross-Cultural
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Preface

I would like to introduce this paper with a comment on its relationship to the theme of this conference, which might be characterized as psychology for Africa, not just psychology in Africa. While the present paper lacks an air of immediate practicality, it has two implications for Africa and those interested in African affairs.

First, although urbanization and "Westernization" are perhaps the most salient aspect of modern Africa, we have little understanding of how family relationships and child care are affected by these processes. I hope to follow the present rural study with a comparative analysis of Kipsigis who have moved to Nairobi. An accurate understanding of such changes is important to those responsible for planning social and educational services. The effectiveness of such programs will be a factor in the quality of life in urban areas, and in the quality of the future citizens of Kenya.

The second implication is either more theoretical or more political, orientation. Differences between white and black babies have been used on several occasions as evidence for racial superiority. Interestingly enough, regardless of which group of babies comes out as "better", it seems to be taken as evidence in favor of the Caucasian people. Several decades ago, Bayley and I believe, Shirley, found in America that rural, Southern black babies were behind urban whites in the development of motor abilities. This was taken by many-though not by the original authors-as proof of innate inferiority. By the late 1950's this work was largely forgotten, and when Geber reported her findings that infants in Uganda were ahead of Caucasian norms, this too was taken by many as evidence of innate black inferiority. The rationale this time, was an analogy to phylogenetic differences in rates of growth and final attainment. For example, monkeys develop more rapidly than humans in the first year of life, but never achieve our mental abilities. Most recently

Arthur Jensen - whose name is probably familiar to you all as a major figure in the present school of innate racial differences in mental abilities - has drawn on the African infant data as supporting his views.

While it is clear that objective evidence plays a limited role in the formation of racial attitudes. I think you will agree that ific record as accurate as possible. The argument of the present paper is that precocity as a generalized phenomenon is not an accurate way to either conceptualize or investigate African infant development. A more detailed approach not only yields a more satisfactory picture of development, but also points to an understanding of the mechanisms involved.

Infant motor development has become almost a standard focus of African research, starting with Geber in 1958 and continuing for more than a dozen other reports. In spite of the number of studies reporting ~~unusually rapid development, it is not until recently (e.g. Leiderman, Babu, Kagia, Kraemer, & Leiderman, in press)~~ that the data have been collected and reported in a way that has been convincing to the reader that any differences exist between African and European development. Serious problems remain in this body of research, however several of them arising directly from the use of standard Western tests of infant development.

As Warren (1972) has pointed out in his thorough review of the literature, previous investigators have, with one exception, compared their African results to published norms, with no effort to convince the reader that testing and scoring were comparable. No reliable comparison can be made without the same testers collecting data from the two groups.

Two other difficulties in the use of standard tests are worth pointing out. First, the content of these tests varies with age in its appropriateness to the experience of non-Western children. It has been reported that the early precocity of African infants begins to decline at approximately 18 months, until by the third year they score reliably below Western infants. It is rarely noted, however, that many of the test items introduced during the second year are distinctly Western. For example, approximately forty percent of the items which fall after 16 months in the Bayley test of motor development (Bayley, 1969) involve the use of stairs -- climbing up, jumping off, and so on. In the village where I have been working at least, there was until two years ago not a single staircase. The importance of adapting test materials to local conditions is now widely recognized for the psychological testing of older children, even though it is still not practiced in all cases. The point is equally valid for testing very young children, and infants.

TABLE I.

AGE DISTRIBUTION OF SAMPLEAGE IN MONTHS

Number of subjects	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>
	1	1	1	0	5	2	3	1	0	2	2	2

The subjects here are virtually all the children under one year of age in a settlement scheme in Western Kenya: two infants were omitted due to illness at the time scheduled for testing. Table I shows the distribution of ages for the subjects.

The village in which these children live actually consists of 54 homesteads of about 18 acres each. Cattle and maize production are the main means of livelihood. The inhabitants are Kipsigis, a Kalejin people of the highland Nilotic group. The typical family consists of the father and mother, four to six children, and perhaps a grandparent, second wife, or other relative. The children are often cared for by older siblings and spend much of their time being carried either on the back or the hip of their caretaker.

Table II presents the results of testing the 20 infants on eight of the scales described by Bayley (1961). Included in the table are the number of children who have attained some point on each scale at an age younger than that given by Bayley; and their average precocity; and the number of children who have failed some item on that scale, even though older than the age given by Bayley, with their average deficit.

It is evident that these infants are three or four months precocious on upright progression to walking and other scales involving strength and coordination of the legs, and about a month precocious on head control, grasping, and sitting. Evidence for precocity is weak for prone behavior, and the infants are probably behind American children in rolling over.

The mothers of these infants were interviewed about what behaviors babies learn in the first year of life, and how they learn them: does the child simply learn by himself, or does he need help? As can be seen in Table III, the mothers were overwhelmingly of the opinion that their children needed help in sitting, standing and walking, and "seeing". There are special words to describe this teaching in Kipsigis. But turning over and crawling, the mothers said, are learned without teaching,

The mothers reported that they and the other caretakers did, in fact, help the children with the former set of behaviors, but not the latter. Weekly visits and spot observations indicate that "teaching" is almost a daily occurrence.

In addition to conscious teaching on the caretaker's part, one must also consider the opportunity in daily life for incidental practice and learning. Again, there is concordance between routine behavior and level of performance on the Bayley scales. While quantitative measures are not yet available, it is clear that these infants spend an enormous amount of time in the vertical position, and relatively little time prone or supine, compared to American children. It appears that while on the mother's back, or being held on the caretaker's hip, the child has almost constant practice in using his legs for balance and support. He also has much greater need and opportunity to develop good head control. In contrast, crawling and rolling over constitute a small part of the activities and needs of these children. As we have seen, they achieve these behaviors at the same time or later than their Western peers.

What evidence is there that the concordance of these behaviors -- teaching and learning, practice and ability -- have a cause and effect relationship? I know of two experimental studies which are relevant. First, MacGraw (1935) showed years ago that motor skills which are learned normally in the course of the first few years of life can, within limits, be learned earlier with specific tutoring. In an experiment more directly similar to the present situation, Zelazo, Zelazo and Kolb (1972) showed with American infants that if the newborn "walking" reflex is exercised in early life it does not disappear, as normally happens with American infants, but comes more under the deliberate control of the child. Infants in Zelazo's study who had this exercise learned to walk earlier than their unexercised controls. The amount of training it should be pointed out, was vastly less than the present subjects are receiving.

There are three scales I have not yet discussed. Two of them, balance and standing up, are easily seen to follow from practice in standing and walking. Since these are achieved early here, it is reasonable that the children should also gain good balance and learn to stand up in a coordinated way early.

It is more difficult to account for the precocity of finger-thumb coordination in grasping. While the families of the present subjects frequently and consciously engage in showing and handing small objects to the child (under the rubric of teaching "to see"), it is not apparent to me that they do this more than their American counterparts ---although it remains a possibility. It is more likely that through being carried on the back much of the time, the infants get frequent experience in grasping the mother's clothing for support. In addition, the vertical position leads to a more alert state when awake (Bower, 1971; Korner & Grobstein, 1966), and the practice they do get in attending and reaching for objects may be especially affective. Or, perhaps my scoring is just more lenient than Bayley's and in future comparison with an American sample this precocity will disappear.

Regardless of the final interpretation of this one scale, there is enough information in the present data to suggest that there is not a generalized precocity of motor development in African children, but rather a number of precocities, each of which can be related to specific child rearing practices. Informal inquiry suggests these practices are common throughout Kenya including traditional Baluya and Kikuyu groups, as well as Kalenjin. Konner (personal communication) reports similar beliefs and practices among Bushman in Botswana. It is probably the disappearance of these practices with Westernization and Urbanization which accounts for the apparent social class effects (see Warren, 1972).

There have been, of course, claims that African infants are also precocious in mental development.

Whether this is true when evaluated in a way not contaminated by motor acts such as reaching remains to be seen. Related spheres of development, such as accomodation to a diurnal cycle or the differentiation and control of state of consiousness, have yet to be evaluated.

Although I would **by** no means argue that the issues are settled the motor precocity phenomena which are reliably known at present can be adequately explained by variations in child care and training practices. The theory that there is a general precocity which is "related primarily to genetic factors" (Leiderman el al, in press) fails to acknowledge, and has difficulty in accounting for the discrete patterning of precocity and deficit.

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TABLE II
INFANT TEST RESULTS

SCALE	Range of Mean At- tainment of items (from Bayley study in months)	Number of Children Scored in Present study	Number of Children achieving items ear- lier than Bayley's norms	Number Children achieving items later than Bayley's norms	Numbered Children Indeter- minate (between items)	Mean Preco- cacity (in months relative to Bayley's norms)	Mean Deficit (in months) relative to Bayley's norms
In Arms- Head control	.1 - 4.2.	3	3	0	0	1.3	-
Prone- Crawl	.1 - 7.1	13	3	1	9	0.8	0.9
Supine- Roll Over from back	1.8 - 6.4	4	0	3	1	-	1.2
Sitting	2.3 - 6.9	10	1	0	0	0.9	-
Cube Grasp	3.7 - 6.9	7	5	0	2	1.5	-
Upright Progress to walking	7.4 - 11.7	18	17	0	1	3.1	-
Stand up from floor	12.6 - 30.4	3	3	0	0	4.0	-
Balance	15.9 - 23.5	1	1	0	0	4.1	-

*This scale omitted for some subjects.

TABLE III

Mothers' Opinion Concerning
Teaching Motor Skills to Infants

Skill	Teaching necessary and done	Teaching Unnecessary and not done
All over	2	11
crawl	0	2
sit	18	
stand/ walk	19	1
"see"	5	0

Note: N=20; some interviews incomplete.